Hortiulcture and Crop Science Department Series 691

1998 Muck Crop Cultivar Trials:

Dry Onions
Green Onions
Leeks
Lettuce
Parsley
Radishes

W.B. Evans
Muck Crops Branch
4875 SR 1035
Willard, OH 44890

The Ohio State University
Ohio Agricultural Research and Development Center
Department of Horticulture and Crop Science

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Table of Contents

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1998 Dry Onion Cultivar Trials

W.B. Evans. Ohio Agricultural Research and Development Center
Muck Crops Branch, Willard, OH 44890

The 1998 long day onion trial consisted of four plots each of 10 entries grown at the O.A.R.D.C. Muck Crops Branch in Willard, OH and one plot each of 33 observational entries. Each plot contained 3 rows, 20 ft. long and 19 in. apart. Plots were spring plowed and fertilized with 700 lb. 16-8-26. Plots were sown April 29 at approximately 12 seeds/ft. A cover crop of wheat (1 bu./acre) was broadcast after the onions were sown. An in-furrow insecticide was applied at planting and standard pest management practices were used during the season. Calcium nitrate (53 lb. N/acre) was broadcast on June 23. Manganese (4 lb./acre) was sprayed on the foliage July 28. The plots were subject to four flooding rains during production, each resulting in standing water for at least 12 hours. A fast developing outbreak of foliar disease followed a flooding rain in late July, likely contributing to our disappointing yields. Fungicide treatments continued and all but one cultivar continued to grow toward the time of bulbing. Thrips were well controlled. Onion maggot damage was negligible. Weed pressure was also well managed. Overhead irrigation was used in May and between heavy rains when needed.

The crop was harvested the week of September 14, air cured, and stored for 8 weeks. Bulbs were then graded, weighed, and counted. Few large bulbs (>3.5 inches) were produced by any cultivar. These were not separated from the 2-3.5 inch onions during grading. A ten bulb sample of bulbs larger than 2 inches was retained and rated qualitatively for color, shape, and scale retention.

The best performing entries in the replicated trial tended to be those already grown locally including Burgos and Daytona (Table 1). Frontier yielded well but did not hold its scales well during curing. Athos and Corona may have sized better had the season been more suited to longer season entries. Other replicated entries appeared to have lower yield potential or other quality faults. Mars, the only red entry in the replicated trial, performed worse than both red entries in the observational trial.

Table 1. Dry onion cultivar characteristics at grading of replicated plots.

Cultivar	Source[1]	Yield <2 in. (lb./plot)	Yield >2 in. (lb./plot)	Yield soft /sprouted (lb./plot)	Yield total (lb./plot)	Mean weight >2 in. bulbs (oz.)	Outer scale retention[2]	Bulb shape[3]	Bulb color[4]
Burgos	VL	20.2	20.2	1.8	42.2	2.91	F/G	FG	MBRZ
Daytona	BZ	22.1	19.4	2.5	43.9	2.87	G	TG	M/DBRW
Frontier	AT	16.4	17.2	2.5	36.1	2.66	P/F	FG	LBRW
Corona	BZ	28.1	12.7	4.6	45.3	2.73	P/F	TG	LBRZ
Hoopla	RC/SI	27.4	9.9	7.5	44.8	2.92	P/F	G	L/MBRZ
Athos	VL	32.1	8.9	1.9	42.8	2.73	P/F	T	L/MBRW
Uni-Globe 118	PS	18.8	8.5	8.7	36.0	2.98	F/G	PG	M/DBRW
Uni-Globe 108	PS	17.7	7.6	5.3	30.7	2.74	F	FG	MBRW
Cisco	BZ	24.4	6.0	2.3	32.7	2.63	P	FG	LBRZ
Mars	PS	15.7	3.5	3.9	23.1	2.72	F	P	VRD
$LSD_{0.05}$		9.3	7.2	2.9	12.4	0.26			

[1] Source codes: AT=American Takii; BZ=Bejo Zaden; PS=Peto Seeds; RC=Rio Colorado; SI=Siegers; VL=Vilmorin;
[2]Scale retention codes: P-poor; F-fair; G-good; n.d.-not determined.
[3]Bulb shape codes: F-flat; G-globe; T-tall; H-high: P pointed n.d.-not determined.
[4]Bulb color codes: L-light; M-medium; D-dark; BRW-brown; BRZ-bronze; WHT-white; VRD-violet red; PRD-purple red; n.d.-not determined.

The best performing yellow onions in the observational trial were Legend, Altisimo, Festival and Rio Lobo (Table 2). Legend did not size as well as some others but might have needed a little better weather to size properly. Rio Lobo, Festival and Altisimo produced larger marketable bulbs but also might have done better had the season allowed for greater sizing. Altisimo did not retain its scales well during curing. Santos yielded well and had the largest bulb size in the trial, but had many rotten and sprouted bulbs after curing. Uni-Globe 100 might also have benefited from better weather. Tamara produced large bulbs but had a small number of onions harvested, indicating a stand problem. Ailisa Craig Exhibition appeared to have many sweet onion characteristics including the tendency to rot during curing.

Redwing was the best performing red cultivar across both trials. Mercury had more rotten onions after curing. Gladstone, a white, might have been acceptable in a better season.

Table 2. Dry onion cultivar characteristics at grading of observational plots.

Cultivar	Source[1]	Yield <2 in. (lb./plot)	Yield >2 in. (lb./plot)	Yield soft /sprouted (lb./plot)	Yield total (lb./plot)	Mean weight >2 in. bulbs (oz)	Outer scale retention[2]	Bulb shape[3]	Bulb color[4]
Santos	VL	9.7	48.0	6.6	64.3	4.1	F	FG	LBRW
Legend	BZ	28.2	38.8	4.2	71.1	2.5	F/G	TG	LBRW
Altisimo	BZ	17.0	25.4	3.1	45.4	3.3	P/F	TG	MBRZ
Festival	BZ	21.1	24.7	2.6	48.3	3.2	F/G	T	MBRZ
Redwing	BZ	17.8	23.8	5.5	47.0	3.1	F/G	FG	PRD
Tamara	BZ	8.0	22.6	2.8	33.4	3.9	F/G	T	MBRZ
Rio Lobo	RC/SI	17.7	19.9	3.1	40.6	2.9	P/F	PG	LBRW
RCS 7120	RC/SI	8.7	19.6	6.2	34.4	3.3	F	FG/G	L/MBRW
Uni-Globe 100	PS	20.4	16.0	6.8	43.1	2.9	P/F	TG	L/MBRZ
Carnival	BZ	21.4	13.5	4.1	39.0	3.0	G	TG	M/DBRW
RCS 7144	RC/SI	18.6	13.4	1.3	33.3	2.8	F/G	FG	MBRW
Chateau	AS	16.8	12.3	2.0	31.1	2.8	G	HG	M/DBRW
Santana	BZ	28.6	11.7	0.0	40.3	2.7	G	FG	L/MBRW
1022	DP/SI	14.1	11.2	1.4	26.6	3.1	F	PG	L/MBRW
Arsenal	AS	15.2	11.2	1.8	28.2	2.8	n.d.	n.d.	n.d.
Pathfinder	RC/SI	15.7	10.5	3.2	29.4	3.3	F/G	FG	MBRZ
Lorenzos	VL	20.4	10.0	2.9	33.2	2.6	F/G	FG	M/DBRW
Mercury	PS	17.5	9.4	10.6	37.5	2.9	G	PG	VRD
1023	DP/SI	16.5	7.6	4.8	28.8	2.8	P/F	FG	L/MBRZ
Fleetwood	BZ	13.5	7.1	2.6	23.2	2.8	G/E	P	DBRW
Eagle	RC/SI	23.4	6.4	0.8	30.6	2.6	P/F	PG	MBRW
1059	DP/SI	13.8	5.7	1.4	20.9	3.1	F	FG	LBRW
Flagship	AS	19.4	5.4	1.7	26.5	2.5	G	HG	M/DBRW
Gladstone	BZ	28.8	5.3	0.6	34.7	2.3	P/F	P	WHT
1054	DP/SI	19.4	4.2	2.0	25.6	2.8	P/F	FG	MBRW
Hamlet	AS	19.6	4.1	0.7	24.4	2.5	G	HG	DBRW
Ailisa Craig Exhibition	JS	16.4	3.7	18.0	38.0	2.9	P	P	BRW
Hercules	RC/SI	12.5	2.8	7.2	22.5	2.8	F	G	L/MBRW
Quantum	PS	18.5	2.4	1.6	22.5	2.7	P/F	FG	L/MBRW
VL-224	VL	23.1	2.3	0.0	25.4	2.8	P/F	FG/G	MBRZ
Cavalier	AS	19.2	2.1	0.4	21.7	2.6	G	PG	MBRZ
1060	DP/SI	1.8	1.5	1.2	4.4	3.3	G	TG	M/DBRZ
Mission Star	HM	1.6	0.0	0.0	1.6	0	.	.	WHT

[1]Source codes: AS=Asgrow; BZ=Bejo Zaden; DP=D. Palmer; HM=Harris Moran; JS=Johnny's; PS=Peto Seeds; RC=Rio Colorado; SI=Siegers; VL=Vilmorin

[2]Scale retention codes: P-poor; F-fair; G-good; n.d.-not determined.

[3]Bulb shape codes: F-flat; G-globe; T-tall; H-high: P pointed n.d.-not determined.

[4]Bulb color codes: L-light; M-medium; D-dark; BRW-brown; BRZ-bronze; WHT-white; VRD-violet red; PRD-purple red; n.d.-not determined.

1998 Green Onion Cultivar Replicated Trial

W.B. Evans. Ohio Agricultural Research and Development Center
Muck Crops Branch, Willard, OH 44890

The 1998 green/bunching onion trial consisted of four plots each of 11 entries grown at the O.A.R.D.C. Muck Crops Branch in Willard, OH on a Linwood muck. Each plot contained 3 rows, 20 ft. long and 19 in. apart. Plots were spring plowed and fertilized with 700 lb. 16-8-26. Plots were seeded May 28 at 18 seeds/ft. Plots were sidedressed June 23 with 53 lb. N as calcium nitrate. Manganese (4 lb./acre) was sprayed on the foliage July 28. This difficult season was characterized by dry, moderately warm weather broken up every 30-40 days by flooding rains of 2-7 inches in 1-2 days. Despite this, little foliar disease was seen.

Each plot was harvested when most plants had reached marketable size. Plants from ten row feet from the center row were weighed, graded, trimmed to marketable size, and reweighed. The width (data not shown) and length of the white portion (shank) of 10 plants was recorded. Leaf diameter, color, and angle of attachment were described qualitatively from photographs taken after trimming.

The best overall onions were the Kincho and Ishakura selections. These produced a high percentage of marketable plants with few of the negative attributes other entries exhibited (Table 1). Leaves of Long White Sakata may be too thick, with too wide an angle of attachment for some markets. Long White Koshigaya may also be a good choice if long shanks are not needed by the market. Parade produced long shanks but also produced many unmarketable onions.

The following onions were included in the replicated trail but failed to produce significant numbers of harvestable onions: Hikawa (TS/SI), Iwai #2 (TS/SI), and Feast (AT). Data from these plots was not included in the analysis of variance.

Table 1. Green onion cultivar characteristics at harvest.

Cultivar	Source[1]	Mean days to harvest	Percent marketable plants (%)	Yield trimmed marketable plants (lb./10 ft.)	Mean weight trimmed marketable plant (oz.)	Mean shank length (in.)	Relative leaf diameter	Leaf color[2]	Leaf angle[3]
Long White Sakata	SK/SI	73	81.6	2.60	1.15	1.20	Large	MBG	W
Kincho	DH	77	74.7	2.77	0.88	1.13	Med.	DG	M
Ishakura Improved	SI	73	72.4	2.84	0.80	1.00	Sm./med.	L/MG	M
Kincho	AT	80	69.7	2.67	1.15	1.17	Med.	DG	M
Ishakura Footlong	SI	76	63.4	2.34	0.72	1.11	Sm./med.	MG	N/M
Long White Koshigaya	SK	73	63.4	2.62	0.77	0.88	Sm./med.	DG	N
Parade	BZ	79	63.2	1.94	0.93	1.28	Small	M/DG	N
$LSD_{0.05}$		n.s.	n.s.	n.s.	n.s.	n.s.			

[1]Source codes: AT=American Takii; BZ=Bejo Zaden; DH=Daehnfeldt; SI=Siegers; SK=Sakata.
[2]Leaf color codes: DG-dark green; L/MG-light/medium green; MG-medium green; MBG-medium blue green.
[3]Leaf angle codes: N-narrow; M-medium; W-wide.

1998 Leek Cultivar Replicated Trial

W.B. Evans. Ohio Agricultural Research and Development Center
Muck Crops Branch, Willard, OH 44890

The 1998 leek trial consisted of four plots each of 11 cultivars grown at the O.A.R.D.C. Muck Crops Branch in Willard, OH on a Linwood muck. Each plot contained 3 rows, 20 ft. long and 19 in. apart. Plots were spring plowed and fertilized with 700 lb. 16-8-26. Plugs raised in MetroMix 360 were transplanted on May 28 after 8 weeks in the greenhouse. Plots were sidedressed June 23 with 53 lb. N as calcium nitrate. Manganese (4 lb./acre) was sprayed on the foliage July 28. This difficult season was characterized by dry, moderately warm weather broken up every 30-40 days by flooding rains of 2-7 inches in 1-2 days. Despite this, little foliar disease was seen.

Each plot was harvested when most plants had reached marketable size. Twenty plants from the center row were weighed, graded, trimmed, and reweighed. The width (data not shown) and length of the white portion (shank) of 10 plants was recorded. Leaf color and angle were described qualitatively from photographs taken after trimming.

The best performing cultivars were Leekwik, Arkansas RS, and Tadorna (Table 1). Alora, the local, early standard, was indeed early and of good quality, but only produced 72% marketable plants. Tadorna is the later, local standard. Arkansas RS produced large plants with quite succulent, easily damaged foliage during warm weather. Its foliage was firmer and more tolerant of handling when the slowest maturing replicate was harvested in the cooler weather of early September. Leekwik matured late and had fairly short shanks. Enza 15505 had quite a narrow leaf angle. Enza 15504 produced a greener, less blue foliage than other cultivars in this trial. The percentage of marketable plants produced by a cultivar was somewhat correlated with uniformity of the marketable plants.

Table 1. Leek cultivar characteristics at harvest.

Cultivar	Source[1]	Days to harvest	Percent marketable plants (%)	Mean weight trimmed plant (oz.)	Mean shank length (in.)	Leaf color[2]	Leaf angle[3]
Leekwik	FM/SI	104	91.7	9.1	4.7	DBG	NM
Arkansas RS	PS	96	88.8	10.2	5.9	MBG	M/W
Tadorna	EZ	100	85.0	9.4	6.2	M/DBG	N/M
Enza 3075	EZ/SI	104	83.8	8.5	5.0	MBG	M
Enza 15504	EZ	99	82.5	9.1	5.2	MG/BG	N/M
Enza 15505	EZ	88	80.0	8.2	5.0	MBG	N
Snowstar	EZ/SI	86	77.1	9.8	5.5	MBG	M/W
Enza 15503	EZ	93	76.3	8.5	4.8	M/DBG	M/W
Jersey RS	PS	94	76.3	8.3	5.9	M/DBG	W
Alora/ Autumn Giant 3	RZ/SI	92	72.1	9.8	5.9	MBG	N/M
Enza 15502/ Firena	EZ	101	70.0	9.3	4.2	M/DBG	M/W
$LSD_{0.05}$		10.7	n.s.	n.s.	1.8		

[1]Source codes: EZ=Enza Zaden; FM=Ferry-Morse; PS=Peto Seeds; RZ=Rijk Zwaan; SI=Siegers
[2]Leaf color codes: DBG-dark blue green; MBG-medium blue green; MG/BG-medium green/blue green.
[3]Leaf angle codes: N-narrow; M-medium; W-wide.

1998 Lettuce Cultivar Trials

W.B. Evans. Ohio State University/Ohio Agricultural Research and Development Center Muck Crops Branch, Willard, OH.

Summary:

Three lettuce plantings were evaluated as observational trials in 1998. Ratings were focused on potential for marketing through wholesale channels as unprocessed, full sized plants. The season was marked by periodic flooding rains that resulted in poor quality and significant bolting. Regional favorites performing well included New Red Fire red leaf, Full Heart 65 escarole, Slobolt green leaf, and Esmerelda Boston. Each class produced some other named and numbered entries worthy of further testing. Several other entries showed good potential for niche markets.

Introduction:

Ohio's muck crop growers raise more than one dozen salad crops including more than half a dozen types of lettuce, escarole, and endive. Most lettuce is marketed to grocers and others through wholesale channels. Growers need uniform, high quality leaf goods that withstand each step in the market channel and provide buyers and consumers with appealing, high quality product. This set of trials was designed to evaluate the growth and market traits of named and numbered entries grown under Ohio conditions.

Materials and Methods:

Entries for these trials were solicited from more than a dozen seed producers and resellers. No restrictions were placed on the number of entries or their classifications, except than iceberg-types, not grown locally, were not requested. More than 130 entries were tested, with an effort being made to include local standards.

The spring crop was transplanted 10 inches apart in rows 19 inches apart on May 20 and 21. The summer crop of escarole, endive, and romaine was direct-seeded on June 10. The Boston, red leaf, green leaf, and Batavian entries were seeded June 21. The fall trial was sown August 6 and 10. The seeded crops were thinned to stand 10 inches apart at the 2-3 leaf stage. Pronamide (12 lb./acre) was watered in at each planting for weed control. Additional hand cultivation was used. Minimal insect and disease control was employed so that observations on the relative susceptibility of each entry to yellows and other diseases could be recorded.

Initially, several cultivars in each class were planted in replicated trials. Flooding damaged some replicates. Thus, no statistical analyses were conducted. The results are reported instead as the means and summaries of observations from one to four plots across all listed seasons of evaluation. Important differences seen within an entry, among the seasons, are noted.

Entries were evaluated mainly for potential in wholesale/shipping markets. Evaluations were not focused on potential in the home garden, baby, whole-leaf blend, or lightly processed markets. Field evaluations were made to assess crop uniformity, maturity, color, habit, and disease/stress incidence. Ten heads were removed from each mature plot, weighed, trimmed, and reweighed. Additional observations on head characteristics and quality were made prior to washing and photographing. Head size comments refer to the general size of the trimmed

plants, whether or not they formed a true head. Lettuces that looked good stacked on their sides, leaf tips out and butts away as they would be displayed at retail, were deemed to "present well". If significant petiole cracking occurred as the lettuces were trimmed and brought together, they were deemed to "fold poorly". Cross sections were made to evaluate cores for hollow stems and possible bolting.

An overall, subjective rating was given to each entry based on all of the observations listed above, averaged across all seasons in which the entry was evaluated. These ratings are against others of the same class and relate relative quality within the class.

Results and Discussion:

These results reflect the great stresses each planting went through before harvest. Each planting was subject to at least one flooding rain in the first half of growth. The water had the most affect on romaines. No romaines reached harvestable stage in any season. The spring and summer crops bolted due to flooding stress. The fall romaines did not mature before frost. Bolting was significant in all the spring and summer classes. Entries that did well in these trials will likely prove quite tolerant of a wide range of growing conditions and environmental stresses. Almost all entries were planted spring, summer, and fall. Only entries that approached or reached harvestable size were evaluated and discussed in the tables. An entry with comments from two or three plantings was likely more tolerant of the year's stresses than one with comments from only one plantings.

Not all seed entries for this trial were primed. This led to stand establishment difficulties for some entries. The fall crop emerged better than the summer crop.

Overall, the results of this trial should be used in context with previous trials (discussed below) and grower experience. While the severe conditions encountered this season allowed versatile entries to stand out, they might have masked the potential of others. Additional trials, under less stressful, will be needed to make stronger recommendations.

The best performers from each class included:

Batavians (Table 1): Nevada performed admirably, especially in the fall. It is a lime-green, semi-heading lettuce which might do very well for a niche marketer. Cardinale, entered by three vendors, did not do well in this trial. It bolted and produced ununiform plants.

The Batavian class produced diverse types, most with somewhat sturdy leaves. Leafy and semi-heading types were seen. Lettuces in this European class are said to have a longer shelf life than standard leaf lettuces. This class is not currently grown locally.

Boston/bibb (Table 2): Esmerelda performed best. This class was quite susceptible to the stresses of the growing seasons. Most spring entries were wiped out by flooding, the fall ones by frost. A common defect was yellow leaf margins.

Green leaf (Table 3): Greenday showed potential for fall crops in this area as a darker green alternative to Slobolt, which also grew well. Crisp 'N Green was indeed somewhat brittle, as were most other entries. Green Vision was entered by three vendors. Each ended up with a different numerical rating indicating possible questions of uniformity within the cultivar or among the plots in the trials. The spring trial was damaged the most by flooding rains.

Red leaf (Table 4): New Red Fire performed well in all three seasons. PS68292, PSR 7509, HMX 2267, and HMX 7554 showed some promise. For specialty markets, the oak-leafed Brunia proved adaptable to our growing conditions, especially for fall.

Romaines: Ratings and comments on the romaines are excluded from this report as most entries failed to produce marketable heads due to water stress. Flooding rains impacted all three plantings. Romaines were the most severely affected class. No romaines reached harvestable size before bolting in the spring and summer trials, nor before frost in the fall trial. Darkland and Sweet Valentine, a red leafed cultivar, stood out in the fall as those with the most potential for late season production.

Endive (Table 5): Cosma, Enza 18504, and Tasos were the best of several good entries. They were uniform and produced large, high quality heads. Monaco, Neos, Frisan RS, Salad King, and Enza 18503 were also worthy entries. Monaco and Neos were less uniform. Frisan RS yielded some hollow butts. Salad King required significant trimming of rotten and yellowed leaves. The fine-leafed Stratego would do well if blanched for specialty markets.

Escarole (Table 6): Coral, Full Heart 65, and Twinkle were the highest rated entries. Coral was uniform in one set of plots but produced more variable heads in another. Full Heart 65 was somewhat non-uniform but produced large, good looking heads. Twinkle did well in the spring and fall but bolted somewhat in summer.

Of the cultivars described above as performing well, the following also performed well for Hassell and Wallace[1] in 1997: Esmerelda Boston; Crisp 'N Green and Slobolt green leaf; New Red Fire, and PS69292 red leaf; Tasos, Markant, Salad King, and Cosma endive; along with NR65 and Stratego escarole. Those doing well in 1998, but not in 1997 include Bossa and Twinkle escarole, and Wallone and Monaco Endive. Those doing well in 1997 but not in 1998 included: Optima and Ermosa Bostons, Red Line red leaf, Eros escarole, and Oxalie endive. Those recommended in either 1997 or 1998, but not evaluated in the other included: Balisto Boston; Tiara, SVR 64289, and Green Day green leaf; PSR 7509, HMX 2267, HMX 7554, and Brunia red leaf; Elisa escarole; all recommended Batavians; and all recommended romaines.

[1]Hassell, R.L. and C. Wallace. Leaf lettuce cultivar evaluation trials - 1997. Horticulture and Crop Science Dept. Ser. 672. Ohio Agricultural Research and Development Center.

Thank you to the Ohio Vegetable and Small Fruit Research and Development Program for supporting this work, to all seed companies listed below for their support and advice, and to the Muck Crops Branch crew for its efforts during the 1998 season.

Table 1. Batavian lettuce observational trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
Nevada	VL	2.33	sp,su,fl	1.09	light/med. green, flat leaves, semi-heading, uniform, some rot, fringed/crinkled leaves, med. heads, some yellows, some summer bolting, upright, Boston-like, folds well, for niche packs? better in spring and fall.
Invicta	RZ	2.0	sp,su,fl	0.70	light/med. green, crinkled/fringed leaves, Slobolt-like, med./large heads, some ununiformity, rot, fair folding, rib browning, presents well.
Musca	VL/SI	2.0	sp,fl	0.50	light green, crinkled/fringed leaves, med./large heads, moderate uniformity, folds well, poor stands, presents well, darker Slobolt type.
Nevada	JS	1.5	sp,fl	0.86	light/med. green, smooth/slightly wrinkled leaves, Boston/iceberg cross. moderate uniformity, odd habit, will grow here but for niche markets, some fall bolting, dense, med. heads, upright, poor stand, folds well, for niche packs? Fall crop better than summer.
Sierra	JS	1.33	sp,su,fl	1.17	green with red, moderate uniformity, too little red, summer bolting, small/med. heads, loose heads fringed/crinkled leaves, poor fall stand, folds well, almost no rot
Cardinale	JS	1.0	sp,su,fl	1.14	some bolting all seasons, flat/fringed/ruffled leaves, semi-heading, moderate uniformity, medium size, loose heads, fair folding, iceberg-like, niche packs?
Cardinale	OE	1.0	su,fl	1.1	bolting, med./large heads, loose heads, med. red, flat/ruffled leaves, ununiform, for niche packs?, fair folding
Cardinale	VL	1.0	sp,su	.	light red, flat fringed leaves, moderate uniformity, semi-heading, summer bolting, not harvested
Ascona	RZ/SI	1.0	su	.	med./dark red, fringed leaves, small/med. heads, ununiform, time needed?
Loma	JS	1.0	sp,su,fl	0.65	water stress, moderate uniformity, aphids in fall, prostrate, poor folding, summer bolted, med./dark green crinkled/fringed leaves, loose endive-like, odd habit, fall crop best
Sierra	VL	.	.	.	No stands

[1]Sources: JS=Johnny's Seeds; OE=Ornamental Edibles; RZ=Rijk Zwaan; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

Table 2. Boston and bibb lettuce observational trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
Esmerelda	PS	3.0	sp,su	0.65	light green, smooth leaves, uniform
Esmerelda	SI	2.75	su,fl	0.64	small leaves, small/med. heads, some yellows, rot, uniform, light/med. green, poor fall stand, no burn
Enza 20507/Grappa	EZ	2.0	sp,su	0.63	med. green, med./large heads, some rot, moderate uniformity, poor summer stand
Nancy	SI	2.0	su	.	med. green, smooth leaves, medium heads
HMX 7550	HM	2.0	sp,su	.	med. green, flat leaves, some bottom rot, small/med. heads, some yellows, ununiform
Bravo	GG/SI	1.5	su,fl	0.6	med. green, med. heads, some rot, bolting, fair uniformity, poor fall stand, fall crop better than summer
Arizona RZ	RZ/SI	1.0	su	0.46	med. green, smooth/savoy leaves, med./large heads, moderate uniformity
Bravo	GG/SI	1.0	su	0.47	light/med. green, med. heads, ununiform, needs time?
Margarita	SI	1.0	su	.	med. green, med. heads, some rot, yellows, ununiform, not harvested
Ermosa	JS	1.0	su	.	dark green, savoy, med. heads, some rot, ununiform, poor summer stand, not harvested
Jacqueline	PS	1.0	su	.	bolting, not harvested
7550	FM/SI	1.0	su	.	not harvested
Optima	SI	1.0	su	.	no stands, not harvested
Divina	VL	1.0	su	0.65	light/med. green, large heads, poor summer stand
BOS 9017	OR/SI	.	sp,su	.	med. green, smooth leaves, small heads, some bolting, yellows, ununiform, not harvested
Summer Bibb	SI	1.0	su	.	med./dark green, smooth leaves, small heads, some yellows, bolting, ununiform, not harvested

[1]Sources: EZ=Enza Zaden; FM=Ferry-Morris; HM=Harris Moran; GG=Green Genes; JS=Johnny's Seeds; OR=Orzetti; PS = Peto; RZ=Rijk Zwaan; SI=Siegers; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

Table 3. Green leaf lettuce observational trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
PSR 64289/ Green Day	SI	2.25	su,fl	0.73	may not fold in summer but nice in fall, med./dark green, fringed/crinkled leaves, med./large heads, some summer bolting, uniform, dense, poor fall stand, many aphids, presents well, fall crop better than summer
Slobolt	SI	2.25	su,fl	0.44	light/med. green, med./large heads, uniform, presents well, may have needed more time, crinkled/savoy/fringed leaves, loose/flat heads, lighter color than Royal Green, poor fall stand
Green Vision	CV/SI	2.0	su,fl	0.92	med./large heads, med./dark green, fringed/crinkled leaves, some rot, bolting, uniform, moderate stands, poor folding, brittle petioles, presents o.k., rough from field, marginal necrosis
Greenday	PS	2.0	su,fl	0.61	med./large heads, med. green, crinkled/fringed leaves, poor stands, rot, moderate uniformity, folds well, suckers
2549	FM-HM/SI	2.0	sp,fl	0.85	med./dark green, quite savoyed/crinkled leaves, some water stress, uniform, split crowns, poor, brittle, loose, open habit, some drop, good stands, for niche packs?
Crisp 'N Green	JS	2.0	sp,su	0.60	light/med. green, fringed/wrinkled leaves, some water stress, moderate uniformity, brittle, large heads
Krypton	PS	1.66	sp,su,fl	1.12	med. green, med. heads, some bolting, moderate uniformity, brittle, crinkled/fringed leaves, moderate stand, some rot, big/brittle petioles, presents fair, succulent
Green Vision	JS	1.5	sp,fl	0.90	med. /dark green, savoyed/wrinkled leaves, ununiform, varied leaf texture, med. heads, poor stand, some rot, poor folding, presents fair
2560	FM-HM/SI	1.33	sp,su,fl	0.94	bolting, light green, some water stress, moderate uniformity, light color, crinkled/fringed leaves, med./large heads, some yellows, bolting, rot, unruly, fall crop best, Slobolt-like
Centennial	JS	1.33	sp,su,fl	0.97	light/med. green, small/med. heads, ununiform, poor stand, folds well, semi-heading, aphids in fall, unique habit, market as loose head, crinkled leaves, summer/fall bolting, spring crop best

(continued next page)

Table 3 (cont.).

Two Star	JS	1.33	sp,su,fl	0.68	med./dark green, some water stress, yellows, bolting, moderate uniformity, not dense, presents well, tough leaves, brittle petioles, crinkled/fringed leaves, med./large heads, some off-types, drop, spring and fall crops best
Vanity	JS	1.33	sp,su,fl	1.10	light green, iceberg-like, fringed/crinkled leaves, some rot, moderate uniformity, med./large heads, poor fall stand, middles heading, poor folding, brittle, many aphids, presents well
Waldmann's # 15	GG/SI	1.25	su,fl	0.95	poor folding, presents well, suckers, summer bolting, crinkled/fringed leaves, med. green, large heads, moderate uniformity, some drop, fall crop best
Fanfare	SI	1.0	su	0.82	bolting, some petiole cracking, presents nicely, similar to Royal Green, med. green, crinkled/fringed leaves, large heads, some yellows, drop
HMX 2549	HM	1.0	sp,su,fl	1.10	light/med. green, some water stress, med. heads, bolting, some rot, poor folding, holds water, crinkled/savoyed leaves, spinach-like, large heads, some ununiformity, some drop
6553	FM-HM/SI	1.0	sp,su,fl	0.94	some bolting, med./dark green, crinkled/fringed leaves, some water stress, moderate uniformity, large heads, suckers, poor, some off-types, drop, upright leaves
HMX 6553	HM	1.0	sp,su,fl	0.87	med. green, crinkled/fringed leaves, ununiform, small heads, rib cracking, bolting, brittle, large curved petioles, summer bolting, unruly heads, Slobolt-like, Fall crop best
Green Vision	SI	1.0	su,fl	0.74	dark green, crinkled/fringed leaves, med./large heads, some yellows, bolting, moderate uniformity, dense, med./dark green, moderate stands, some rot, poor/fair folding, presents fair, rough field appearance
Royal Green	SI	1.0	su,fl	0.71	folds fair, similar to Fanfare, presents well, summer bolting, light/med. green, crinkled/savoyed leaves, loose/tall heads, some drop, poor stands, moderate uniformity, fall crop best
Royal Green	PS	1.0	sp,fl	0.92	bolting, med. green, crinkled/fringed leaves, some water stress, ununiform, med./large heads, med. green, crinkled/fringed leaves, poor stand, brittle, presents well
Glossy Green	AS	1.0	sp,su	.	spring bolting, med. green, crinkled leaves, some water stress, some tip burn, uniform, poor summer stand, not harvested

[1]Sources: AS=Asgrow; CV=Central Valley; FM=Ferry-Morse; GG=Green Genes; HM=Harris Moran; JS=Johnny's Seeds; PS=Peto; SI=Siegers; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

Table 4. Red leaf lettuce trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
New Red Fire	SI	2.75	sp,su,fl	0.72	med./dark red with green, crinkled/fringed leaves, med. heads, moderate uniformity, dense, needs time, fall crop best
PS 69292	PS/SI	2.25	sp,su,fl	0.61	med. heads, fair uniformity, folds well, crinkled/fringed leaves, light/med. red with bronze, some aphids, fall crop best
2267	FM-HM/SI	2.0	sp,su	.	red fringed, fringed/savoy leaves, uniform, summer bolting
7554	FM-HM/SI	2.0	sp,su	.	red, fringed/wrinkled leaves, uniform, summer bolting
Brunia	VL	2.0	sp,su	0.37	med. red fringed, oakleaf with wrinkles, uniform, med. heads, moderate uniformity, folds well, specialty markets
PSR 7509	PS	1.83	sp,su,fl	0.74	crinkled/fringed/wrinkled leaves, uniform, summer bolting, folds well, presents fair, med./large heads, poor fall stand, spring/fall crops best
Cabernet Red	AS	1.5	sp,su,fl	.	light red, fringed/crinkled leaves, uniform, small, no summer/fall stands
5190	FM-HM/SI	1.33	sp,su,fl	0.87	med./dark red with green, fringed/crinkled leaves, too little red, med. heads, some bolting, poor folding, aphids, deep red margins, presents well, open habit, moderate uniformity
HMX 2267	HM	1.25	sp,fl	0.83	some bolting, savoyed/crinkled leaves, brittle, moderate uniformity, needs time, med. heads, med. red with lime, folds well, many aphids, presents well, succulent, fall crop best
Red Line	PS	1.0	su,fl	1.18	summer bolting, fair folding, presents o.k., variable leaf length, petiole feeding damage, crinkled/fringed leaves, light/med. red with green, large heads, uniform, upright, fall crop best
Brune D'Hiver	VL	1.0	sp,su	.	some bolting, red fringed green, flat pointed leaves, ununiform, poor summer stand, no fall stand
Red Rage	PY	1.0	su	.	bolted, not harvested
Rolina	SI	1.0	su	0.23	med. red, crinkled/fringed leaves, med./large heads, ununiform, brittle, summer bolting
Red Fox	JS	1.0	su	.	summer bolting, not harvested

[1]Sources: AS=Asgrow; FM=Ferry-Morse; HM=Harris Moran; JS=Johnny's Seeds; OE=Ornamental Edibles; PS=Peto; PY=Pybas; SI=Siegers; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

Table 5. Endive trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
Cosma	EZ/SI	3.0	su	1.04	large heads, uniform
Enza 18504	RZ/SI	3.0	su	1.10	large heads, uniform
Tasos	BZ	2.75	su,fl	1.14	uniform, med./large heads, no burn
Monaco	RZ/SI	2.5	su,fl	0.79	med./large heads, dense, moderate uniformity
Neos	BZ	2.5	su,fl	1.05	med. heads, moderate uniformity
Frisan RS	PS	2.5	su,fl	1.22	uniform, med./large heads, no burn, hollow butts
Salad King	PS	2.5	sp,su	0.65	heavily fringed leaves, large heads, uniform
Enza 18503	EZ	2.33	sp,su,fl	1.31	med. green, fringed leaves, early, promising, moderate uniformity, some summer burn, spring crop best
Enza 18502	EZ	2.33	sp,su,fl	0.82	bolting, heavily fringed, medium heads, moderate uniformity, summer and fall crops best
Stratego	RZ/SI	2.0	su,fl	0.75	ununiform, med. green, frilled/fine leaves, small heads, specialty markets/niche packs?, fall crop best
Markant	EZ/SI	2.0	su	1.30	dark green, savoyed leaves, med./large heads, bolting, moderate uniformity, dense, kale-like
Wallone	VL	2.0	sp,su,fl	0.81	med./dark green, med./large heads, uniform, dense, may be too small, needs time to fill out, folds well, spring and fall crops best
Jen 1197	JS	1.33	sp,su,fl	0.94	bolting, water stress, heavily fringed leaves, uniform, med./large heads, too small, hollow butts
Tosca	VL	1.33	sp,su,fl	0.82	spring bolting, med. green, deep serrated leaves, large frisee-type, moderate uniformity, small/med. heads, some edge burn, fine frilled
PX 0152	RS/SI	1.25	su,fl	0.44	med. heads, some burn, small heads, small leaves, moderate uniformity, poor stands, fine cut leaves, for niche packs?
Taglio	JS	1.0	sp,su,fl	0.66	bolting, small/med. heads, deep fringed leaves, med./large heads, dandelion-like, lateral buds broken, not dense, red on petioles, ununiform, specialty niche
Malan	PS	1.0	su	.	large leaves, large heads, ununiform, not dense, poor stand, rot, unharvestable
Oxalie	RZ/SI	1.0	su	.	med. green/yellow, small heads, some rot, moderate uniformity, light weight, yellow margins, not harvested

[1]Sources: BZ=bejo; EZ=Enza Zaden; JS=Johnny's Seeds; PS= Peto; RS=Royal Sluis; RZ=Rijk Zwaan; SI=Siegers; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

Table 6. Escarole observational trials, 1998.

Entry	Producer/ Supplier[1]	Rank[2]	Seasons evaluated[3]	Mean trimmed head weight (lb.)	Comments
Coral	JS	3.0	su,fl	0.83	med./large heads, uniform, dense, med. green, flat, Deep Heart-type
Full Heart 65	PY	2.5	su,fl	0.97	med. heads, some yellowing, rot, some summer bolting, moderate uniformity, dense, med. green, flat leaves, fall crop best
Twinkle ez	EZ	2.5	su,fl	0.81	med./large heads, some bolting, dense, med. green, flat leaves, uniform, folds well, some yellow tips, fall crop best
Ciarda	SI	2.0	su,fl	1.12	med./large heads, some rot, tip burn, light green, flat heads, some ununiformity, might have filled with time
Bossa	BZ	2.0	su,fl	1.20	med./large heads, some rot, flat leaves, moderate uniformity, folds well, may fill later, presents well
Grosse Bouclee	VL	2.0	su,fl	0.98	small/med. heads, yellowing, rot, moderate uniformity, not dense, flat leaves, fall crop better than summer
Full Heart NR65	PS	2.0	su,fl	1.18	med./large heads, some rot, bolting, moderate uniformity, light weight, tip burn, bottom rot, med. green, flat leaves, folds well, fall crop better than summer crop
Ciarda ez	EZ	2.0	su,fl	0.86	med./large heads, moderate uniformity, moderate weight, med. green, flat leaves, good stand, folds well, fall crop better than summer
Systel RZ	RZ/SI	1.75	su,fl	0.88	med./large heads, some rot, ununiform, moderate density, large/flat leaves, rough in field, folds well
Geante Maraichere	VL	1.5	su,fl	1.01	med./large heads, some rot, med. green, some ununiformity, folds well, large leaves, may fill later
Eros	BZ	1.25	su,fl	1.08	med. heads, some yellow leaves, rot, moderate uniformity, dense, flat leaves, fall crop better than summer
Coral	EZ	1.25	su,fl	1.09	small leaves, small/med. heads, some bolting, uniform, dense, some yellowing, rough field appearance
Elisa	.	.	.	.	Not planted.

[1]Sources: BZ=bejo; EZ=Enza Zaden; JS=Johnny's Seeds; PS=Peto; PY=Pybas RZ=Rijk Zwaan; SI=Siegers; VL=Vilmorin.
[2]Overall 1998 rank of quality, potential productivity, and suitability for at least one market channel: 1 = unsuitable, 3 = highest potential.
[3]Seasons:sp = spring, su = summer, and fl = fall.

1998 Parsley Cultivar Observational Trial

W.B. Evans. Ohio Agricultural Research and Development Center
Muck Crops Branch, Willard, OH 44890

The 1998 parsley trial consisted of one plot of each of 13 entries grown at the O.A.R.D.C. Muck Crops Branch in Willard, OH on a Linwood muck. Each plot was a single raised bed with 3 rows, 20 ft. long and 20 in. apart. Prior to bedding, plots were spring plowed and fertilized with 700 lb. 16-8-26. Seeding rate equaled 21 lb./acre. After the first cutting, plots were sidedressed with 50 lb. N as ammonium nitrate. This difficult season was characterized by dry, moderately warm weather broken up every 30-40 days by flooding rains of 2-7 inches in 1-2 days.

Each plot was harvested twice by cutting the leaf petioles 1-2 inches above the ground. Growers should expect 2-4 cuttings from commercial fields. Flat leaf cultivars tended to reach the cutting stage earlier than curly types. Higher yield was associated with earliness.

The best flat leaf cultivars were Gigante Catalogno, Plainleaf, Dark Green Italian, and Gepetto (Table 1). Titan, a very short, small-leafed type, may be suitable for home and ornamental use, as well as some direct and niche markets, where lower yield can be made up with higher asking prices. No cultivar appeared to have significant resistance to the septoria blight found in our growing area. Taller cultivars did not necessarily have thicker petioles.

Top performing curly types included Moss Curled and Forest Green (Table 2). Forest Green had less throwdown and thus might be harvested faster than Moss Curled. Shorter or more tightly curled cultivars tended to be darker green. The shortest types would be difficult to band for traditional wholesale packs. Less septoria was seen in curly cultivars than in flat leaf types. As with the flat leaf types, height did not appear correlated with petiole thickness.

Table 1. Yield and quality of flat leaf parsley entries.

Cultivar	Source[1]	Total yield (lb./10 ft.)	Marketable yield (lb./10 ft.)	Percent throwdown (%)	Bunch height (in.)	Color rank[2]	Leaf size rank	Petiole diameter rank
Gigante Catalogno	JSS	13.8	7.5	45.6	15.0	1	4	2
Plainleaf	JSS	12.3	7.1	42.2	17.0	2	3	4
Dark Green Italian	AS	12.2	6.6	46.4	16.5	4	5	5
Gepetto	D	11.5	6.4	44.4	14.0	3	6	6
Plain	AS	9.5	5.7	41.1	11.0	5	2	3
Titan/bejo 1687	BZ	7.5	5.5	26.7	8.5	6	1	1

[1]Source Codes: AS=Asgrow; BZ=Bejo Zaden; D=Daehnfeldt; JSS=Johnny's.
[2]Higher rank is darker, bigger, or wider for color, leaf size, and petiole diameter, respectively. Ranks are subjective and not indicative of absolute differences.

Table 2. Yield and quality of curly leaf parsley entries.

Cultivar	Source[1]	Total yield (lb./10 ft.)	Marketable yield (lb./10 ft.)	Percent throwdown (%)	Bunch height (in.)	Color rank[2]	Curl rank	Petiole diameter rank
Moss Curled	AS	10.3	7.0	31.7	12.0	2	2	6
Forest Green	AS	8.0	7.0	12.2	9.3	3	3	3
Verta	SI	6.7	4.9	26.4	7.0	6	6	2
Bravour	ST	7.1	4.7	33.7	8.0	1	1	5
Darki	ST	7.1	4.3	39.3	8.7	4	4	1
Unicurl	ST	6.4	4.0	36.4	8.0	5	5	4
Favorit	BZ	5.3	2.7	49.8	6.3	7	7	7

[1]Source codes: AS=Asgrow; BZ=Bejo Zaden; SI=Siegers; ST=Stokes.
[2]Higher rank is darker, tighter, or wider for color, curl, and petiole diameter, respectively. Ranks are subjective and not indicative of absolute differences.

1998 Summer Radish Trial

W.B. Evans. Ohio Agricultural Research and Development Center
Muck Crops Branch, Willard, OH 44890

This radish trial consisted of four plots each of 28 entries grown at the O.A.R.D.C. Muck Crops Branch in Willard, OH and one large plot each of 16 entries grown on commercial field less than 0.5 miles from the branch. At the branch, each plot contained 5 rows, 20 ft. long and 10 in. apart. The on-farm site had 3 rows 330 ft. long 10 inches apart. Branch plots were spring plowed and fertilized with 700 lb. 16-8-26. Plots at both sites were sown (July 7 and 8 at the branch and grower's site, respectively) at 10 seeds/ft. At the branch, manganese (4 lb./acre) was sprayed on the foliage July 28. One flooding rain occurred approximately 10 days after planting. This ruined two replicates at the branch, leaving two. Data from the two good replicates was combined with that of corresponding cultivars at the grower's site to give three replicates of 10 cultivars for statistical analysis. The remaining 23 cultivars not grown at both locations are described here as observational plots. Data from these is from one plot at the on-farm location or the mean of two plots from the branch location. Although the trial sites historically have high rhizoctonia and clubroot pressure, disease incidence was low in all but the flooded out plots.

Each plot was harvested when most plants had reached marketable size. Plants from two meters of the center row were weighed, topped, graded, and reweighed. Marketable roots included all salable roots greater than 0.75 in. in diameter. Throwdown included all smaller radishes. Percent throwdown is a percent of total root yield, by weight. Excessive throwdown can slow hand harvest. Cull roots greater than 0.75 inches in diameter were also separated from the marketable roots. Their yields were recorded and used to calculate total root yield, but are not reported here. The total length (after trimming tails and petioles) and width of ten medium sized bulbs was used to calculate bulb length to width ratio or relative roundness of the bulbs. A length:width ratio of 1.0 indicates round bulbs. Larger ratios indicate elongated bulbs; smaller numbers flattened bulbs. Top length was determined by measuring the longest leaf of five plants.

The best radishes for summer production included: Rave, Brio, Fireball, Cabernet, 39-61 RZ, Hunter, and 9045 (Tables 1 and 2). Cultivars with longer tops, unsuitable for summer bunch production, that should be tested for spring and fall production included: Belle Glade, HMX 9768, SRA 6507 and VIL 97-53. Cabernet and Belle Glade have been consistently among the better performers over the last few years. All other cultivars yielded poorly or exhibited flaws such as long tops, high throwdown, poor uniformity, or elongated roots.

Table 1. Radish cultivar characteristics at harvest of replicated plots.

Cultivar	Source	Mean days to harvest	Yield marketable roots (lb./2 m)	Maximum length of tops (in.)	Root length:width	Throwdown (%)	Marketable root uniformity	Root color
Rave	AC	25.0	1.88	8.8	1.13	2.7	good	medium
SRA 4505	SK	26.3	1.85	9.7	1.11	7.5	good	medium
SRA 6508	SK	26.3	1.82	11.3	1.05	5.2	poor	light
Cherriette	SK	24.2	1.70	8.1	1.24	4.4	poor	med./drk.
Brio	VL	26.3	1.68	9.5	1.13	3.8	good	dark
Enza 41801	EZ	27.3	1.55	7.5	1.03	3.7	poor	lt./med.
Altaglobe	CH	26.0	1.08	12.2	1.06	6.8	fair	lt./med.
Fuego	RG	26.5	0.98	8.0	1.14	4.3	fair	dark
Furabella	SI	28.3	0.87	7.6	1.11	0.9	fair	med./drk.
Crunchy Red	SK	25.0	0.77	8.7	1.09	11.3	good	med.
$LSD_{0.05}$		n.s.	0.72	2.0	n.s.	4.7		

Table 2. Radish cultivar characteristics at harvest, unreplicated plots.

Cultivar	Source	Mean days to harvest	Yield marketable roots (lb./2 m)	Maximum length of tops (in.)	Root length:width	Throwdown (%)
SRA 3503	SI	26	2.10	11.0	1.11	3.7
Fireball	SI	27	2.10	7.9	1.04	2.5
39-50 RZ	SI	26	1.80	6.3	1.27	9.5
39-61 RZ	SI	26	1.78	7.5	0.98	1.4
VitaRed	PS	23	1.70	5.9	1.40	2.0
Belle Glade	HM	29	1.65	14.6	1.06	10.5
ATX 93E	AT	28	1.63	7.5	1.22	1.5
39-60 RZ	SI	26	1.60	9.1	1.26	1.4
PX98644	PS	23	1.60	7.5	1.30	1.9
Cabernet	SI	24	1.52	7.5	1.09	4.2
HMX 9768	HM	28	1.38	10.8	1.04	10.2
Hunter	SI	28	1.30	7.9	1.06	2.6
915643	PS	23	1.30	7.1	1.36	2.3
SRA 6507	SK	29	1.25	12.2	1.08	22.6
Tinto	VL	28	1.25	8.5	1.21	0.6
VIL 97-53	VL	25	1.25	6.1	1.13	8.2
Enza 41901	EZ	27	1.25	8.3	1.31	3.6
9045	SI	26	1.23	8.7	1.15	2.0
SRA 4504	SI	26	1.10	10.0	1.19	3.9
Fancy Red	HM	28	1.08	12.4	1.07	12.6
Metro RZ	SI	28	1.05	8.7	1.14	6.6
SRA 4506	SK	28	1.00	9.4	1.04	11.0
Red Silk	HM	29	0.95	12.2	1.23	34.7

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